



# PROBLEM SUMMARY

## Sample Rating Trend

ISO

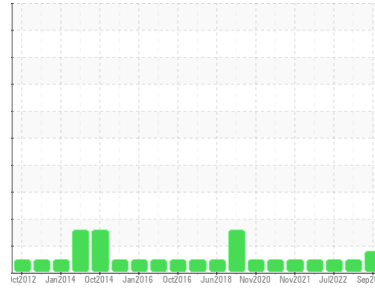


Area  
**RIPPEY [200005325]**

Machine Id  
**82206 SITE 10**

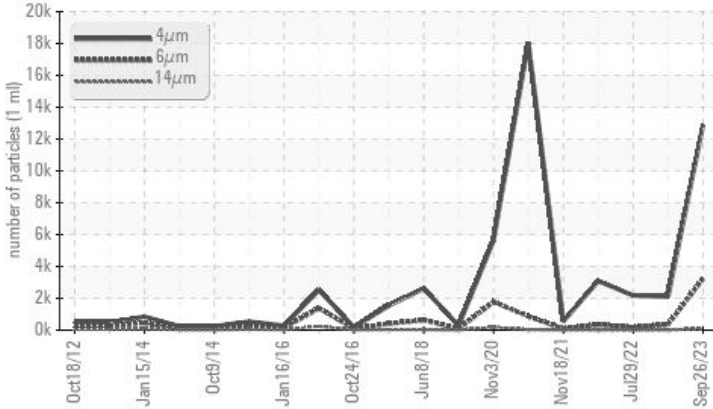
Component  
**Wind Turbine Gearbox**

Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 320 (340 LTR)**



## COMPONENT CONDITION SUMMARY

### ▲ Particle Trend



## RECOMMENDATION

No corrective action is recommended at this time.  
Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

Sample Status		ATTENTION	NORMAL	NORMAL
Particles >6µm	ASTM D7647 >2500	▲ 3235	363	180
Oil Cleanliness	ISO 4406 (c) >-/18/15	▲ 21/19/13	18/16/11	18/15/10

Customer Id: NORDEX  
Sample No.: NX05999827  
Lab Number: 05999827  
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
Jonathan Hester +1 919-379-4092 x4092  
[jhester@wearcheckusa.com](mailto:jhester@wearcheckusa.com)

To change component or sample information:  
Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

### 18 Apr 2023 Diag: Don Baldrige

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 29 Jul 2022 Diag: Angela Borella

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 13 Jun 2022 Diag: Doug Bogart

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report





# OIL ANALYSIS REPORT

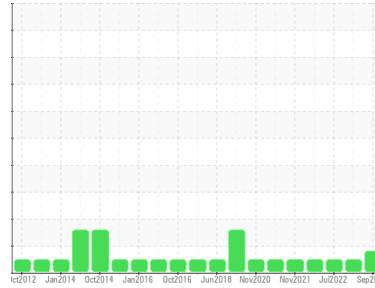
Sample Rating Trend

ISO



Area  
**RIPPEY [200005325]**  
Machine Id  
**82206 SITE 10**

Component  
**Wind Turbine Gearbox**  
Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 320 (340 LTR)**



## DIAGNOSIS

**Recommendation**  
No corrective action is recommended at this time. Resample at the next service interval to monitor.

**Wear**  
All component wear rates are normal.

**Contamination**  
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

**Fluid Condition**  
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>NX05999827</b>	NX05913472	NX05672227
Sample Date	Client Info	<b>26 Sep 2023</b>	18 Apr 2023	29 Jul 2022
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ATTENTION</b>	NORMAL	NORMAL

## WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184	>80	<b>12</b>	18	9	
Iron	ppm	ASTM D5185m	>150	<b>2</b>	2	
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	0	
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	0	
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	
Silver	ppm	ASTM D5185m		<b>0</b>	0	
Aluminum	ppm	ASTM D5185m	>10	<b>4</b>	<1	0
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>50	<b>7</b>	6	4
Tin	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m		<b>39</b>	0	0
Barium	ppm	ASTM D5185m		<b>0</b>	0	5
Molybdenum	ppm	ASTM D5185m	1150	<b>733</b>	786	742
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>7</b>	4	5
Calcium	ppm	ASTM D5185m	2000	<b>1435</b>	1630	1430
Phosphorus	ppm	ASTM D5185m	400	<b>341</b>	365	309
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0	<1
Sulfur	ppm	ASTM D5185m	1850	<b>1686</b>	2082	1820

## CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>50	<b>12</b>	8	9
Sodium	ppm	ASTM D5185m	>20	<b>6</b>	7	5
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	0	2
Water	%	ASTM D6304	>0.05	<b>0.024</b>	0.025	0.027
ppm Water	ppm	ASTM D6304	>500	<b>245.5</b>	258.3	273.3

## FLUID CLEANLINESS

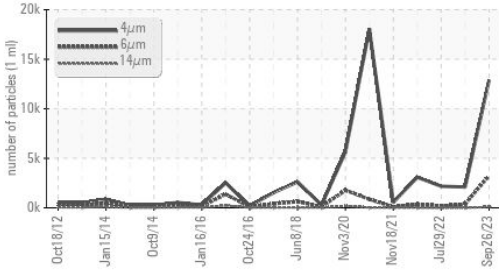
method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		<b>12879</b>	2099	2175
Particles >6µm	ASTM D7647	>2500	<b>3235</b>	363	180
Particles >14µm	ASTM D7647	>320	<b>78</b>	16	6
Particles >21µm	ASTM D7647	>80	<b>12</b>	3	1
Particles >38µm	ASTM D7647	>20	<b>2</b>	0	0
Particles >71µm	ASTM D7647	>4	<b>2</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>21/19/13</b>	18/16/11	18/15/10

## FLUID DEGRADATION

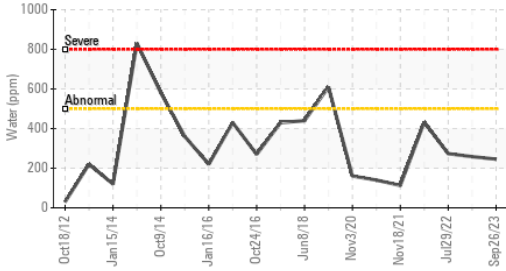
method	limit/base	current	history1	history2		
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.49</b>	0.52	0.55

# OIL ANALYSIS REPORT

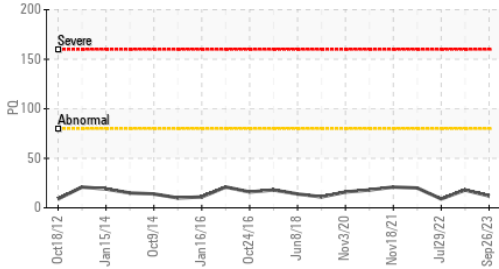
### ▲ Particle Trend



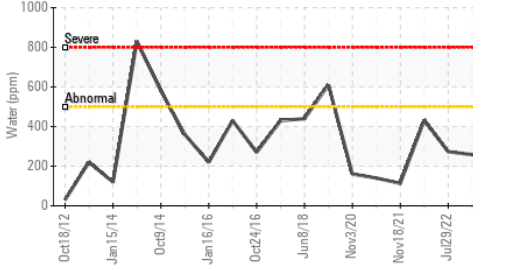
### Water (KF)



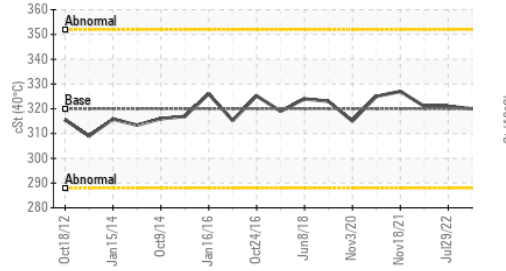
### PQ



### Water (KF)



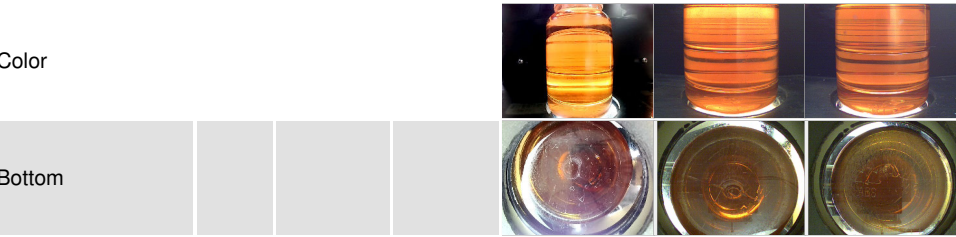
### Viscosity @ 40°C



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

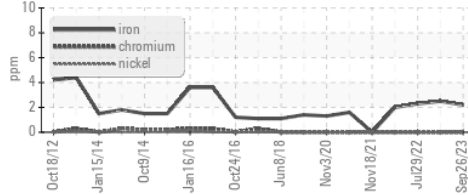
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	320	321

SAMPLE IMAGES	method	limit/base	current	history1	history2
---------------	--------	------------	---------	----------	----------

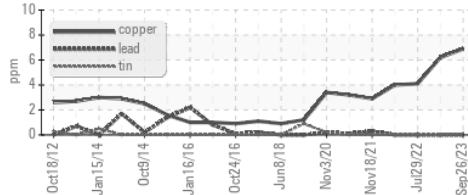


### GRAPHS

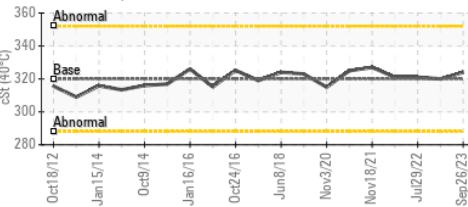
#### Ferrous Alloys



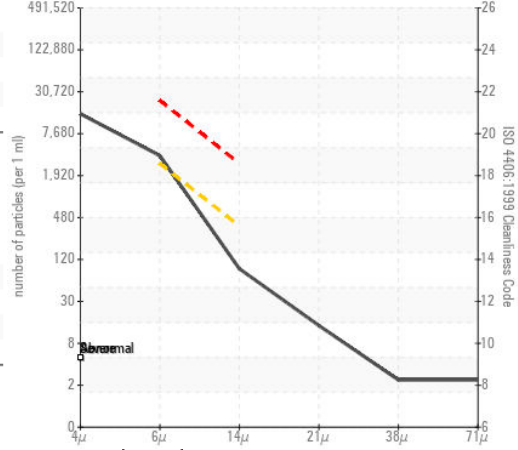
#### Non-ferrous Metals



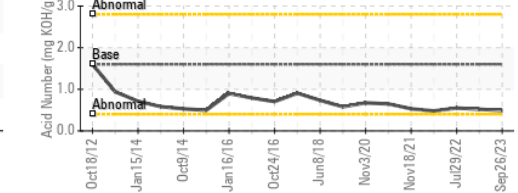
#### Viscosity @ 40°C



#### ▲ Particle Count



#### Acid Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05999827 **Received** : 06 Nov 2023  
**Lab Number** : 05999827 **Diagnosed** : 08 Nov 2023  
**Unique Number** : 10728187 **Diagnostician** : Jonathan Hester

**NORDEX USA - Chicago**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606  
 Contact: DEVIN LINEHAN  
 DLinehan@nordex-online.com  
 T: (312)386-4124  
 F: (312)386-7102

**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)